

What is claimed is:

1. A vibration plate (1), having a baseplate (2), which may be set into vibration by an exciter device (9), having at least one ground plate (3), a top plate (4), and a cell structure (5), which is positioned between the ground plate (3) and the top plate (4) and stiffens the baseplate (2), as supporting components, characterized in that the supporting components form a baseplate (2) having a stiffness in which the lowest natural frequency of the baseplate (2) is at least 2 to 5 times, preferably at least 3 to 4 times the frequency of its vibration.
2. The vibration plate according to Claim 1, characterized in that the supporting components (3, 4, 5) are welded to one another to form a self-supporting body.
3. The vibration plate according to Claim 1 or 2, characterized in that the vibration plate (1) has a surface pressure because of its intrinsic weight between 0.1 N/cm² and 3 N/cm².
4. The vibration plate according to one of the preceding claims, characterized in that the vibration of the baseplate (2) may be set as desired at a frequency between 30 Hz and 60 Hz.
5. The vibration plate according to one of the preceding claims, characterized in that the vibration of the baseplate (2) may be set as desired at an amplitude of more than 0.1 mm and less than 10 mm, preferably 5 mm.
6. The vibration plate according to one of the preceding claims, characterized in that the baseplate (2) has at least one longitudinal girder (8) welded to the cell structure (5) as a further supporting component, which extends parallel to and over a significant part of a long side of the baseplate (2).
7. The vibration plate according to one of the preceding claims,

characterized in that the longitudinal girder (8) is positioned below the exciter device (9).

8. The vibration plate according to one of the preceding claims, characterized in that the longitudinal girder (8) is implemented as a frame lying on the ground plate (3).

9. The vibration plate according to one of the preceding claims, characterized in that the individual cells of the cell structure (5) each have a base (23), whose maximum lateral extension (22) is 20 mm to 200 mm, preferably 56 mm to 162 mm.

10. The vibration plate according to one of the preceding claims, characterized in that the cell structure (5) has cells having at least partially round bases (23).

11. The vibration plate according to one of the preceding claims, characterized in that the cell structure (5) has at least partially differing cell shapes.

12. The vibration plate according to one of the preceding claims, characterized in that the cell structure (5) has closed cell side walls (6, 7, 21).

13. The vibration plate according to one of the preceding claims, characterized in that planes of the cells parallel to the base (23) each have the same shape and area as the base (23).

14. The vibration plate according to one of the preceding claims, characterized in that the cell structure (5) is open on top.

15. The vibration plate according to one of the preceding claims, characterized in that the cell structure (5) is partially closed on top by the top plate (4).

16. The vibration plate according to one of the preceding claims,

characterized in that a profiled strip (13) is attached externally to the ground plate (3).

17. The vibration plate according to one of the preceding claims, characterized in that the vibration plate has a vibration-insulated suspension (11) for installation on a self-propelled support device, which is connected to one of the supporting components of the baseplate (2).
18. The vibration plate according to one of the preceding claims, characterized in that the exciter device (9) is attached to at least one of the supporting components (3, 4, 5, 8) of the baseplate (2).
19. The vibration plate according to one of the preceding claims, characterized in that the exciter device (9) may be coupled to a drive of the self-propelled support device and driven thereby.
20. The vibration plate according to one of the preceding claims, characterized in that the baseplate (2) has an operating width essentially corresponding to its long side, which is at least approximately as wide as the self-propelled support device, particularly wider than the lane of the support device.
21. The vibration plate according to one of the preceding claims, characterized in that the baseplate (2) has a cross-section, in which the region of the ground plate (3) lying forward in operating direction is curved upward together with a forward region of the top plate (4).
22. The vibration plate according to one of the preceding claims, characterized in that the baseplate (2) has a cross-section in which the region of the top plate (4) lying to the rear in the operating direction is slanted falling downward toward the ground plate (3).
23. A baseplate (2) of a vibration plate (1) according to one of the preceding claims.